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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/029,659

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Otto J. Prohaska

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EXAMINER

OLSEN, KAJ K

ART UNIT

PAPER NUMBER

1753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/029,659	<b>Applicant(s)</b> PROHASKA ET AL.	
	<b>Examiner</b> Kaj K. Olsen	<b>Art Unit</b> 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 20,21 and 23-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20,21 and 23-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. Claims 20, 21 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1 037 041 A2 (hereafter "EP '041") in view of any one or more of Lawrance et al (USP 4,272,353) or Debe et al (USP 6,319,293) with or without the further teaching of Aldrich Chemical Catalog.
2. The claims remain rejected over the teachings of EP '041 in view of Lawrance or Debe as set forth in the previous office actions. Applicant has amended the independent claims to state that the opening in the substrate must extend from a first outermost surface to a second outermost surface. The examiner believes that this is not free of the teaching of EP '041 for a couple of reasons. First, fig. 4 shows a porous material being placed through the substrate and this collection of pores would read on the now defined opening. Applicant urges that pores of EP '041 are not openings that extend from the two outermost surfaces of the substrate. Albeit applicant is presumably correct, it is not necessary for the individual pores to extend from one surface of the substrate to another to meet this new claim limitation. A series of pores that are interconnected and allow gas to flow from one side to the other would meet this new limitation. The various pores of the porous layer of EP '041 must be interconnected if the gas in question is going to be able to diffuse from the gas under measurement to the electrode 23. If the pores of EP '041 are not interconnected, the device of EP '041 would have been inoperative.
3. Second, even if the interconnected pores of EP '041 were not interpreted as meeting this new claim limitation, the macroscopic hole that is present in the substrate for accommodating this porous material 22 would read on the defined opening extending from one substrate surface

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to the other. There is nothing in the amended claims that state that the opening of the claims cannot contain porous material itself and the macroscopic opening of EP '041 would meet the new claim limitation.

4. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP '041 in view of Lawrence or Debe (with or without Aldrich) as applied to claim 20 above and in further view of LaConti et al (USP 4,820,386).

5. The references set forth all the limitations of the claim and EP '041 further disclosed the presence of a layer (2 or 22) for slowing inputs of gas moving through the at least one opening. However, EP '041 did not explicitly disclose that said layer could be a polymer. LaConti teaches this layer can comprise polymers. See col. 3, ll. 62-65; col. 5, ll. 49-58 and col. 6, ll. 59-68. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of LaConti for the method of EP '041 and Lawrence or Debe because the substitution of one known diffusion material for another requires only routine skill in the art.

6. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP '041 and either Lawrence or Debe (with or without Aldrich) as applied to claim 20 above, and further in view of Shen et al (USP 5,650,054).

7. The references set forth all the limitations of the claims, but did not explicitly recite the presence of a reservoir. However, Shen discloses utilizing a reservoir to ensure that the membrane remains hydrated regardless of the humidity level of the air. See col. 7, ll. 50-61. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to add the reservoir of Shen to manufacturing of EP '041 in view of Lawrence or Debe in

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order to manufacture a sensor that provides consistent response regardless of humidity level of the measured gas.

8. Claims 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP '041 in view of either Lawrance or Debe (with or without Aldrich) with evidence from, or in further view of, Beech et al (Carbon Monoxide Sensors, Electrochemistry at Loughborough, pp. 1-4, 1999).

9. These claims differ from claim 20 in specifying the presence of a hole in the dry ionomer membrane. However, this broadly defined "hole" would read on any pores that might be present in the ionomer membrane itself. Beech evidences that Nafion inherently has gas permeability and water diffusion properties. See p. 2. In order for Nafion to provide gas permeability and water diffusion, Nafion must possess some degree of porosity and this degree of porosity would read on the claimed "hole" giving the claim language its broadest reasonable interpretation.

10. Alternatively, even if all forms of Nafion are not gas permeable and water diffusible and Beech cannot be utilized to evidence that the particular Nafion of EP '041 was gas permeable and water diffusible, Beech is drawn to a gas sensor and teaches that gas permeability and water diffusion properties of the Nafion desired for its sensor. Presumably, these properties are desired because a hydrated Nafion has an improved sensor response (see discussion of Shen above) and the permeability would improve the sensitivity and response time of the sensor. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Beech for the method of EP '041 in view of Lawrance or Debe in order to improve the sensitivity, sensor response and response times for the sensor.

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11. Claims 20, 21 and 24-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prohaska et al (USP 6,682,638) in view of either Lawrance or Debe with or without Aldrich.

12. The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

13. These claims remain rejected over Prohaska and any of Debe or Lawrence for the reasons set forth in the previous office action. With respect to the new limitation requiring an opening that extends from a first outermost surface to a second outermost surface, Prohaska also teaches such an opening. See fig. 1, col. 3, ll. 24-31, and col. 6, ll. 19-29.

14. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prohaska in view of any one or more of Lawrance or Debe as applied to claim 20 above and in further view of LaConti.

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15. This claim differs by setting forth the use of a polymer layer over the electrode. This claim is rendered obvious in view of LaConti for the same reasons given above.

### ***Response to Arguments***

16. The examiner addressed the arguments in the body of the rejection above and will not reiterate them here. Applicant arguments about the secondary teachings appear to rely on the applicant's belief that EP '041 fails to teach the new limitations about the opening. Because the examiner is not in agreement concerning EP '041 (again see above), these arguments are also unpersuasive. Moreover, the examiner does not believe that it is necessary for Lawrance or Debe to teach anything about the opening itself because these secondary teachings are being utilized solely to suggest that one possessing ordinary skill in the art would have been motivated to keep the membrane dry during the manufacturing of either EP '041 or Prohaska. See paragraph 3 from the advisory action.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The examiner can normally be reached on Monday through Friday from 8:00 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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December 26, 2006

A handwritten signature in black ink, appearing to read 'Kaj K. Olsen', with a long horizontal flourish extending to the right.

**KAJ K. OLSEN**  
**PRIMARY EXAMINER**